

# Year 4 Long Term Planning Maths

Autumn 1		
Spine 1: Number, addition and subtraction		Knowledge
Wk 1-3	<b>1.22 Composition and calculations: 1,000 and four-digit numbers</b> Explores the composition of 1,000 and four-digit numbers, using the partitioning structure, and makes links to measures; introduces children to calculation across thousands boundaries, and extends column algorithms and rounding to four-digit numbers.	<ul style="list-style-type: none"> <li>• Know that ten hundreds make 1,000, which can also be decomposed into 100 tens and 1,000 ones.</li> <li>• Know that when multiples of 100 are added or subtracted, the sum or difference is always a multiple of 100.</li> <li>• Know that numbers over 1,000 have a structure that relates to their size. This means they can be ordered, composed and decomposed.</li> <li>• Know that numbers can be rounded to simplify calculations or to indicate approximate sizes.</li> <li>• Know that calculation approaches learnt for three-digit numbers can be applied to four-digit numbers.</li> <li>• Know that 1,000 can also be composed multiplicatively from 500s, 250s or 200s, units that are commonly used in graphing and measures.</li> </ul>
Spine 2: Multiplication and Division		Knowledge
Wk 4-5	<b>2.10 Connecting multiplication and division, and the distributive law</b> Explores why multiplication is commutative while division is not. Builds on understanding of the difference between adjacent multiples to explore the distributive law, and applies it to derive multiplication facts.	<ul style="list-style-type: none"> <li>• Know that multiplication is commutative; division is not commutative.</li> <li>• Know that multiplication is distributive: multiplication facts can be derived from related known facts by partitioning one of the factors, and this can be interpreted as partitioning the number of groups; two-part problems that involve addition/subtraction of products with a common factor can be efficiently solved by applying the distributive law.</li> <li>• Know that the distributive law can be used to derive multiplication facts beyond known times tables.</li> </ul>
Wk 6	<b>Geometry</b>	<ul style="list-style-type: none"> <li>• Know how to identify lines of symmetry in 2-D shapes presented in different orientations</li> <li>• Know how to identify acute and obtuse angles and compare and order angles up to two right angles by size</li> <li>• Know how to compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</li> <li>• Know how to complete a simple symmetric figure with respect to a specific line of symmetry</li> <li>• Know how to describe positions on a 2-D grid as coordinates in the first quadrant</li> <li>• Know how to describe movements between positions as translations of a given unit to the left/right and up/down</li> <li>• Know how to plot specified points and draw sides to complete a given polygon</li> </ul>
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# Year 4 Long Term Planning Maths

Autumn 2		
Spine 2: Multiplication and Division		Knowledge
Wk 1-2	<b>2.11 Times tables: 11 and 12</b> Builds up the eleven- and twelve-times tables using the distributive law, and solves associated multiplication and division problems. Combines known six times table facts with doubling facts and strategies to multiply by twelve.	<ul style="list-style-type: none"> <li>Know that the distributive law can be used to build up the 11 times table by partitioning 11 into 10 and 1. Adjacent multiples of 11 have a difference of 11.</li> <li>Know that the distributive law can be used to build up the 12 times table by partitioning 12 into 10 and 2. Adjacent multiples of 12 have a difference of 12.</li> <li>Know that products in the 12 times table are double the products in the six times table; products in the six times table are half of the products in the 12 times table.</li> <li>Know that divisibility rules can be used to find out whether a given number is divisible (to give a whole number) by 11 or 12.</li> </ul>
Wk 3-4	<b>2.12 Division with remainders</b> Explores how some quantities can be split into equal groups with a remainder, and expresses this using mathematical notation; practises interpreting the meaning of the remainder in different contexts.	<ul style="list-style-type: none"> <li>Know that objects can be divided into equal groups, sometimes with a remainder; objects can be shared equally, sometimes with a remainder; a remainder can be represented as part of a division equation.</li> <li>Know that if the dividend <i>is</i> a multiple of the divisor, there is <i>no</i> remainder; if the dividend <i>is not</i> a multiple of the divisor, there <i>is</i> a remainder. The remainder is always less than the divisor.</li> <li>Know that when solving contextual problems involving remainders, the answer to a division calculation must be interpreted carefully to determine how to make sense of the remainder.</li> </ul>
Wk 5-6	<b>2.13 Calculation: multiplying and dividing by 10 or 100</b> Uses place-value knowledge to develop strategies for multiplying/dividing by 10 and 100. Generalises about the product or quotient when a factor or the dividend is made 10 or 100 times bigger/smaller.	<ul style="list-style-type: none"> <li>Know that finding 10 times as many is the same as multiplying by 10 (for positive numbers); to multiply a whole number by 10, place a zero after the final digit of that number.</li> <li>Know that to divide a multiple of 10 by 10, remove the final zero digit (in the ones place) from that number.</li> <li>Know that finding 100 times as many is the same as multiplying by 100 (for positive numbers); to multiply a whole number by 100, place two zeros after the final digit of that number.</li> <li>Know that to divide a multiple of 100 by 100, remove the final two zero digits (in the tens and ones places) from that number.</li> <li>Know that multiplying a number by 100 is equivalent to multiplying by 10, and then multiplying the product by 10. Dividing a multiple of 100 by 100 is equivalent to dividing by 10, and then dividing the quotient by 10.</li> <li>Know that if one factor is made 10 times the size, the product will be 10 times the size. If the dividend is made 10 times the size, the quotient will be 10 times the size.</li> <li>Know that if one factor is made 100 times the size, the product will be 100 times the size. If the dividend is made 100 times the size, the quotient will be 100 times the size.</li> </ul>
Wk 7	<b>statistics</b>	<ul style="list-style-type: none"> <li>Know how to present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs</li> </ul>



## Year 4 Long Term Planning Maths

Autumn 2		
Spine 2: Multiplication and Division		Knowledge
		<ul style="list-style-type: none"><li>• Know how to interpret discrete and continuous data using appropriate graphical methods, including bar charts and time graphs</li><li>• Know how to solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs</li></ul>

# Year 4 Long Term Planning Maths

Spring 1		
Spine 1: Number, addition and subtraction		Knowledge
Wk 1-2	<b>1.23 Composition and calculation: tenths</b> Introduces children to tenths using both the partitioning structure and ideas of place value; applies additive facts and strategies, including column algorithms, and rounding to numbers with tenths.	<ul style="list-style-type: none"> <li>• Know that when one is divided into ten equal parts, each part is one tenth of the whole.</li> <li>• Know that tenths can be expressed as decimal fractions; the number written '0.1' is one tenth; one is ten times the size of 0.1.</li> <li>• Know that we can count in tenths up to and beyond one.</li> <li>• Know that numbers with tenths can be composed additively and multiplicatively.</li> <li>• Know that known facts and strategies, including column algorithms, can be applied to calculations for numbers with tenths.</li> <li>• Know that numbers with tenths can be rounded to the nearest whole number by examining the value of the tenths digit.</li> </ul>
Wk 3-4	<b>1.24 Composition and calculation: hundredths and thousandths</b> Building on segment 1.23, introduces children to hundredths (and thousandths) using both the partitioning structure and ideas of place value; applies additive facts and strategies, including column algorithms, and rounding to numbers with hundredths (and thousandths).	<ul style="list-style-type: none"> <li>• Know that when one is divided into 100 equal parts, each part is one hundredth of the whole. When one tenth of a whole is divided into ten equal parts, each part is one hundredth of the whole.</li> <li>• Know that hundredths can be expressed as decimal fractions; the number written '0.01' is one hundredth; one is one hundred times the size of 0.01; 0.1 is ten times the size of 0.01.</li> <li>• Know that we can count in hundredths up to and beyond one.</li> <li>• Know that numbers with hundredths can be composed additively and multiplicatively.</li> <li>• Know that numbers with tenths and hundredths are commonly used in measurement, scales and graphing contexts.</li> <li>• Know that known facts and strategies, including column algorithms, can be applied to calculations for numbers with hundredths; the same approaches can be used for numbers with hundredths as are used for numbers with tenths.</li> <li>• Know that numbers with hundredths can be rounded to the nearest tenth by examining the value of the hundredths digit or to the nearest whole number by examining the value of the tenths digit.</li> <li>• Know that when one is divided into 1,000 equal parts, each part is one thousandth of the whole. Knowledge and strategies for numbers with tenths and hundredths can be applied to numbers with thousandths.</li> </ul>



## Year 4 Long Term Planning Maths

Spring 1		
Spine 1: Number, addition and subtraction		Knowledge
Wk 5-6	<b>1.25 Addition and subtraction: money</b> Building on segments 1.23 and 1.24, introduces children to conventions for expressing monetary value and explores the equivalence of 100p and £1; encourages children to select column algorithms or equivalent calculations where most appropriate.	<ul style="list-style-type: none"> <li>• Know that one penny is one hundredth of a pound; conventions for expressing quantities of money are based on expressing numbers with tenths and hundredths.</li> <li>• Know that equivalent calculation strategies for addition can be used to efficiently add commonly-used prices.</li> <li>• Know that the 'working forwards'/'finding the difference' strategy for subtraction is an efficient way to calculate the change due when paying in whole pounds or notes.</li> <li>• Know that column methods can be used to add and subtract quantities of money.</li> <li>• Know that finding change when purchasing several items uses the part-part-(part-)whole structure.</li> </ul>
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# Year 4 Long Term Planning Maths

Spring 2		
Spine 2: Multiplication and Division		Knowledge
Wk 1-2	<p><b>2.14 Multiplication: partitioning leading to short multiplication</b></p> <p>Introduces the short multiplication algorithm, using it to multiply two-/three-digit numbers by single-digit numbers; explores regrouping where necessary.</p>	<ul style="list-style-type: none"> <li>• Know that the distributive law can be applied to multiply any two-digit number by a single-digit number, by partitioning the two-digit number into tens and ones, multiplying the parts by the single-digit number, then adding the partial products.</li> <li>• Know that any two-digit number can be multiplied by a single-digit number using an algorithm called '<i>short multiplication</i>'; the digits of the factors must be aligned correctly; the algorithm is applied working from the least significant digit (on the right) to the most significant digit (on the left); if the product in any column is ten or greater, we must '<i>regroup</i>'.</li> <li>• Know that the distributive law can be applied to multiply any three-digit number by a single-digit number, by partitioning the three-digit number into hundreds, tens and ones, multiplying the parts by the single-digit number, then adding the partial products.</li> <li>• Know that any three-digit number can be multiplied by a single-digit number using the short multiplication algorithm.</li> </ul>
Wk 3-4	<p><b>2.15 Division: partitioning leading to short division</b></p> <p>Introduces the short division algorithm, using it to divide two-/three-digit numbers by single-digit numbers; explores exchange where necessary.</p>	<ul style="list-style-type: none"> <li>• Know that any two-digit number can be divided by a single-digit number, by partitioning the two-digit number into tens and ones, dividing the parts by the single-digit number, then adding the partial quotients; if dividing the tens gives a remainder of one or more tens, we must exchange the remaining tens for ones before dividing the resulting ones value by the single-digit number.</li> <li>• Know that any two-digit number can be divided by a single-digit number using an algorithm called '<i>short division</i>'; the algorithm is applied working from the most significant digit (on the left) to the least significant digit (on the right); if there is a remainder in the tens column, we must '<i>exchange</i>'.</li> <li>• Know that any three-digit number can be divided by a single-digit number, by partitioning the two-digit number into hundreds, tens and ones, dividing the parts by the single-digit number, then adding the partial quotients; if dividing the hundreds gives a remainder of one or more hundreds, we must exchange the remaining hundreds for tens before dividing the resulting tens value by the single-digit number.</li> <li>• Know that any three-digit number can be divided by a single-digit number using the short-division algorithm.</li> </ul>



## Year 4 Long Term Planning Maths

Spring 2		
Spine 2: Multiplication and Division		Knowledge
Wk 5-6	Measures (time)	<ul style="list-style-type: none"><li>• Know how to solve problems involving converting from hours to minutes</li><li>• Know how to solve problems involving converting from minutes to seconds</li><li>• Know how to solve problems involving converting from years to months</li><li>• Know how to solve problems involving converting from weeks to days</li><li>• Know how to solve simple problems involving all aspects of measurement taught so far</li></ul>

# Year 4 Long Term Planning Maths

Summer 1		
Spine 2: Multiplication and Division		Knowledge
Wk 1	<b>2.16 Multiplicative contexts: area and perimeter 1</b> Uses addition and multiplication to solve problems about the perimeter of irregular and regular 2D shapes, and to find the area of rectilinear and composite rectilinear shapes; uses division to solve associated inverse problems.	<ul style="list-style-type: none"> <li>• Know that perimeter is the distance around the edge of a two-dimensional (2D) shape.</li> <li>• Know that perimeter is measured in units of length and can be calculated by adding together the lengths of the sides of a 2D shape.</li> <li>• Know that multiplication can be used to calculate the perimeter of a regular polygon; when the perimeter is known, side-lengths can be calculated using division.</li> <li>• Know that area is the measurement of the surface of a flat item.</li> <li>• Know that area is measured in square units, such as square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>).</li> <li>• Know that the area of a rectangle can be calculated using multiplication.</li> <li>• Know that the area of a composite rectilinear shape can be found by splitting the shape into smaller rectangles.</li> </ul>
Spine 3: Fractions		Knowledge
Wk 2-5	<b>3.5 Working across one whole: improper fractions and mixed numbers</b> Introduces mixed numbers and improper fractions, and children learn to convert between them; compare, order and place them on a number line. Extends addition and subtraction from within a whole to numbers greater than one whole.	<ul style="list-style-type: none"> <li>• Know that quantities made up of both wholes and parts can be expressed as mixed numbers.</li> <li>• Know that mixed numbers can be placed on a number line.</li> <li>• Know that understanding how to compare and order proper fractions supports the comparison and ordering of mixed numbers.</li> <li>• Know that mixed numbers can be partitioned and combined in the same way as whole numbers.</li> <li>• Know that mixed numbers can be written as improper fractions.</li> <li>• Know that improper fractions can be added and subtracted in the same way as proper fractions.</li> </ul>
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# Year 4 Long Term Planning Maths

Summer 2		
Spine 3: Fractions		Knowledge
Wk 1-2	<b>3.6 Multiplying whole numbers and fractions</b> Considers multiplication of whole numbers and proper fractions as both repeated addition and scaling. Understands that multiplication of a whole number by a proper-fraction results in a smaller number.	<ul style="list-style-type: none"> <li>• Know that repeated addition of proper and improper fractions can be expressed as multiplication of a fraction by a whole number.</li> <li>• Know that repeated addition of a mixed number can be expressed as multiplication of a mixed number by a whole number.</li> <li>• Know that finding a unit fraction of a quantity can be expressed as a multiplication of a whole number by a fraction.</li> <li>• Know that a non-unit fraction of a quantity can be calculated by first finding a unit fraction of that quantity.</li> <li>• Know that if the size of a non-unit fraction is known, the size of the unit fraction and then the size of the whole can be found.</li> </ul>
Spine 2: Multiplication and Division		Knowledge
Wk 3-4	<b>2.17 Structures: using measures and comparison to understand scaling</b> Builds on segment 2.13 to introduce the scaling structure of multiplication and division; uses known multiplication and division strategies to solve problems about scaling/comparison problems.	<ul style="list-style-type: none"> <li>• Know that a longer length can be described in terms of a shorter length using the language of 'times'; the longer length can be calculated, if the shorter length is known, using multiplication.</li> <li>• Know that a shorter length can be described in terms of a longer length using the language of fractions; the shorter length can be calculated, if the longer length is known, using division.</li> <li>• Know that other measures can be compared using the language of 'times' and fractions, and calculated using multiplication or division.</li> </ul>
Weeks 6-7	<b>Revision and catch up</b>	

Aspects of shape and measure are covered within the spines but additional opportunities for practical measure and handling shapes will be built in.

[Perimeter](#)

[Coordinates](#)

[Symmetry in 2D shapes](#)

[Time](#)

May want to dip into:

[3, 6 and 9 Times Tables](#)

[7 times table and patterns](#)